**What is Claimed:**

1. A method for producing a group III nitride compound semiconductor light-emitting device comprising steps of;

producing an emission layer comprising a multi quantum structure (MQW) with well layers and barrier layers, and

doping at least one of donor impurity and acceptor impurity into at least one of said well layers and barrier layers in a producing process of said multi quantum structure.

2. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 1, further comprising a double-hetero junction structure in which said emission layer is sandwiched between adjacent layers.

3. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 1, wherein said donor impurity is selected from the group comprising silicon (Si), germanium (Ge), tellurium (Te), and sulfur.

4. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 1, wherein said multi quantum well structure (MQW) comprises alternating $Al_{X2}Ga_{Y2}In_{1-X2-Y2}N$ barrier layers and $Al_{X1}Ga_{y1}In_{1-X1-Y1}N$ well layers, where $0 \leq x1 \leq 1$, $0 \leq x2 \leq 1$, $0 \leq y1 \leq 1$, $0 \leq y2 \leq 1$, $0 \leq x1+y1 \leq 1$, and $0 \leq x2+y2 \leq 1$.

5. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 4, wherein said composition ratios are designed to match a lattice constant of said barrier layer with a lattice constant of said well layer.

6. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 4, wherein said well layer is from 50 Å to 200 Å in thickness.

7. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 4, wherein said barrier layer is from 50 Å to 200 Å in thickness.

8. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 1, wherein said multi quantum well structure (MQW) comprises alternating $Al_{X2}Ga_{1-X2}N$ burrier layers and $Al_{X1}Ga_{1-X1}N$ well layers, where $0 \leq x1 \leq 1$, $0 \leq x2 \leq 1$, and $x1 < x2$.

9. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 8, wherein said well layer is doped with a donor impurity.

10. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 4, wherein said donor impurity is silicon (Si).

11. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 8, wherein said emission layer is sandwiched between a p-layer comprising acceptor doped $Al_{x3}Ga_{1-x3}N$ with p-type conduction where $x1 \leq x3$ and an n-layer of a donor doped $Al_{x4}Ga_{1-x4}N$ with n-type conduction where $x1 \leq x4$.

12. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 11, wherein said acceptor impurity doped into said player is

magnesium (Mg) and said donor impurity doped into said n-layer is silicon (Si).

13. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 8, wherein said multi quantum well structure (MQW) comprises $Ga_{x1}In_{1-x1}N$ well layers and $Ga_{y1}In_{1-y1}N$ barrier layers, a band gap of said barrier layers being wider than a band gap of said well layers, where $0 \leq x1 \leq 1$, $0 \leq y1 \leq 1$.

14. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 13, wherein said barrier layers comprise gallium nitride (GaN).

15. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 13, wherein said donor impurity is silicon (Si).

16. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 13, wherein said well is doped with an impurity concentration ranging from $1 \times 10^{17}/cm^3$ to $5 \times 10^{18}/cm^3$.

17. A method for producing a group III nitride compound semiconductor light-emitting device comprising steps of:

producing an emission layer comprising a multi quantum well structure (MQW) with well layers and barrier layers, and

doping donor impurity alternately into said well layers and said barrier layers in a producing process of said multi quantum well structure.

18. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17,

further comprising a step of: producing a double-hetero junction structure in which said emission layer is sandwiched between adjacent layers.

19. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 18, wherein said emission layer comprises aluminum gallium indium nitride satisfying the formula $Al_xGa_yIn_{1-x-y}N$, inclusive of x=0, y=0, and x=y=0.

20. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17, wherein an undoped layer is formed between said layer doped with said acceptor impurity and said layer doped with said donor impurity.

21. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 20, said undoped layer having a thickness of from 50 Å to 500 Å.

22. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17, wherein said acceptor impurity and said donor impurity are distributed into said emission layer by one of modulation doping and δ doping.

23. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17, wherein said layer doped with said acceptor impurity and said layer doped with said donor impurity are each from wherein said layer doped with said acceptor impurity and said layer doped with said donor impurity are each from 50 Å to 500 Å in thickness.

24. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17, wherein

said emission layer is doped with a concentration of magnesium (Mg) ranging from 1 x $10^{19}/cm^3$ to 1 x $10^{19}/cm^3$ to 1 x $10^{21}/cm^3$ and exhibits p-type conduction.

25. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17, wherein said acceptor impurity is selected from the group comprising cadmium (Cd), zinc (Zn), beryllium (Be), and calcium (Ca).

26. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17, wherein said donor impurity is selected from the group comprising silicon (Si), germanium (Ge), tellurium (Te), and sulfur (S).

27. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 17, wherein said layer doped with said acceptor layer comprises aluminum gallium indium nitride satisfying the formula $Al_xGa_yIn_{1-x-y}N$, inclusive of x=0, y=0, and x=y=0, and wherein said layer doped with said donor impurity comprises aluminum gallium indium nitride with a varied composition ratio of said formula.

28. A method for producing a group III nitride compound semiconductor light-emitting device comprising steps of:

producing an emission layer comprising a quantum well (QW) structure having at least one well layer, and

doping both an acceptor impurity and a donor impurity into said quantum well structure in a producing process of said quantum well structure.

29. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said well layer is doped with both an acceptor impurity and a donor impurity.

30. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein

said well layer and a barrier layer of said emission layer are doped with both an acceptor impurity and a donor impurity.

31. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said emission layer is an active layer comprising a zinc (Zn) and silicon (Si) doped indium aluminum gallium nitride (InAlGaN) compound.

32. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 29, wherein said quantum well (QW) structure comprises a barrier layer comprising an indium aluminum gallium nitride (InAlGaN) compound, having composition ratios different from said well layer.

33. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 32, wherein said composition ratios are designed to match a lattice constant of said barrier layer with a lattice constant of said well layer.

34. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said quantum well (QW) structure comprises said well layer sandwiched between barrier layers, said barrier layer being doped with an acceptor impurity.

35. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said well layer is from 50 Å to 200 Å in thickness.

36. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 32, wherein said barrier layer is from 50 Å to 200 Å in thickness.

37. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said emission layer having a quantum well (QW) structure comprises

alternating $Al_{x2}Ga_{1-x2}N$ barrier layers and $Al_{x1}Ga_{1-x1}N$ well layers, where $0 \leq x1 \leq 1$, $0 \leq x2 \leq 1$, and $x1 < x2$.

38. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 37, wherein said well layer is doped with both an acceptor impurity and a donor impurity.

39. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 37, wherein said well layer and said barrier layer are doped with both an acceptor impurity and a donor impurity.

40. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 37, wherein said quantum well (QW) structure comprises a multi quantum well (MQW) having a plurality of well layers, a first selected one of said well layers being doped with said acceptor impurity and a second selected one of said well layers being doped with said donor impurity, the first and second selected well layers being adjacent to each other.

41. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 37, wherein said well layer is doped with said acceptor impurity and said barrier layer is doped with said donor impurity.

42. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 41, wherein said well layer is doped with said donor impurity and said barrier layer is doped with said acceptor impurity.

43. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 41, wherein said acceptor impurity is zinc (Zn) and said donor impurity is silicon (Si).

44. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 37, wherein said emission layer is sandwiched between a p-layer comprising acceptor doped $Al_{x3}Ga_{1-x3}N$ with p-type conduction where $x1 \leq x3$ and an n-layer of a donor doped $Al_{x4}Ga_{1-x4}N$ with n-type conduction where $x1 \leq x4$.

45. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 44, wherein said acceptor impurity doped into said player is magnesium (Mg) and said donor impurity doped into said n-layer is silicon (Si).

46. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said quantum well (QW) structure comprises an $Al_{x1}Ga_{y1}In_{1-x1-y1}N$ well and an $Al_{x2}Ga_{y2}In_{1-x2-y2}N$ barrier, a band gap of said barrier being wider than a band gap of said well, said well being doped with one of a donor impurity and an acceptor impurity.

47. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said quantum well (QW) structure comprises an $Al_{x1}Ga_{y1}In_{1-x1-y1}N$ well and an $Al_{x2}Ga_{y2}In_{1-x2-y2}N$ barrier, a band gap of said barrier being wider than a band gap of said well, and said barrier being doped with one of a donor impurity and an acceptor impurity.

48. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 41, wherein said barrier comprises gallium nitride (GaN).

49. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 41, wherein said donor impurity is one of silicon (Si), tellurium (Te), sulfur (S), and selenium (Se) and said acceptor impurity is one of magnesium (Mg) and zinc (Zn).

50. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 41, wherein said well is doped with an impurity concentration ranging from 1 x $10^{17}/cm^3$ to 5 x $10^{18}/cm^3$.

51. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 41, wherein a lattice constant of said well matches a lattice constant of said barrier.

52. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said well layer and said barrier layer are doped with both an acceptor impurity and a donor impurity.

53. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said quantum well (QW) structure comprises a multi quantum well (MQW) having a plurality of well layers, a first selected one of said well layers being doped with said acceptor impurity and a second selected one of said well layers being doped with said donor impurity, the first and second selected well layers being adjacent to each other.

54. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said well layer is doped with said acceptor impurity and said barrier layer is doped with said donor impurity.

55. A method for producing a group III nitride compound semiconductor light-emitting device according to claim 28, wherein said well layer is doped with said donor impurity and said barrier layer is doped with said acceptor impurity.